WHAT IS CLAIMED IS:

1. An expression vector comprising a polynucleotide that encodes a human telomerase reverse transcriptase (hTRT) protein, variant, or fragment having human telomerase catalytic activity when complexed with a telomerase RNA, wherein the polynucleotide hybridizes under stringent conditions to a polynucleotide having a sequence complementary to SEQ ID NO:224.

2. The expression vector of claim 1, further comprising a promoter, an enhancer, or a 3' untranslated region.

3. The expression vector of claim 1, selected from the group consisting of a recombinant bacteriophage, a plasmid, a cosmid, a yeast expression vector, and a viral expression vector.

4. The expression vector of claim 1, selected from the group consisting of a mammalian virus expression vector, an SV40 virus expression vector, an EBV expression vector, an *Autographa californica* nuclear polyhedrosis virus expression vector, an adenovirus expression vector, a retrovirus expression vector, a herpes virus expression vector, and a vaccinia virus expression vector.

5. The expression vector of claim 2, wherein the promoter is a constitutive promoter.

6. The expression vector of claim 2, wherein the promoter is an inducible promoter.

7. The expression vector of claim 2, wherein the promoter is selected from the group consisting of an alpha factor promoter, an alcohol oxidase promoter, a PGH promoter, a 35S promoter of CaMV, a 19S promoter of CaMV, a lacZ promoter, a ptrp-lac hybrid promoter, a polyhedrin promoter, a heat shock promoter, a RUBISCO promoter, and a storage protein gene promoter.

8. The expression vector of claim 1, further comprising a viral origin of replication.

9. The expression vector of claim 1, further comprising a selectable marker gene.

10. The expression vector of claim 9, wherein the selectable marker gene is selected from the group consisting of herpes simplex virus thymidine kinase, adenine phosphoribosyl transferase, *dhfr*, *npt*, *als*, *pat*, *trpB*, *hisD*, anthocyanin, β glucuronidase, and luciferase.

11. A host cell comprising the expression vector of claim 1.

12. A host cell comprising the expression vector of claim 2.

13. A host cell comprising the expression vector of claim 3.

14. A host cell comprising the expression vector of claim 4.